

Printing at CERN

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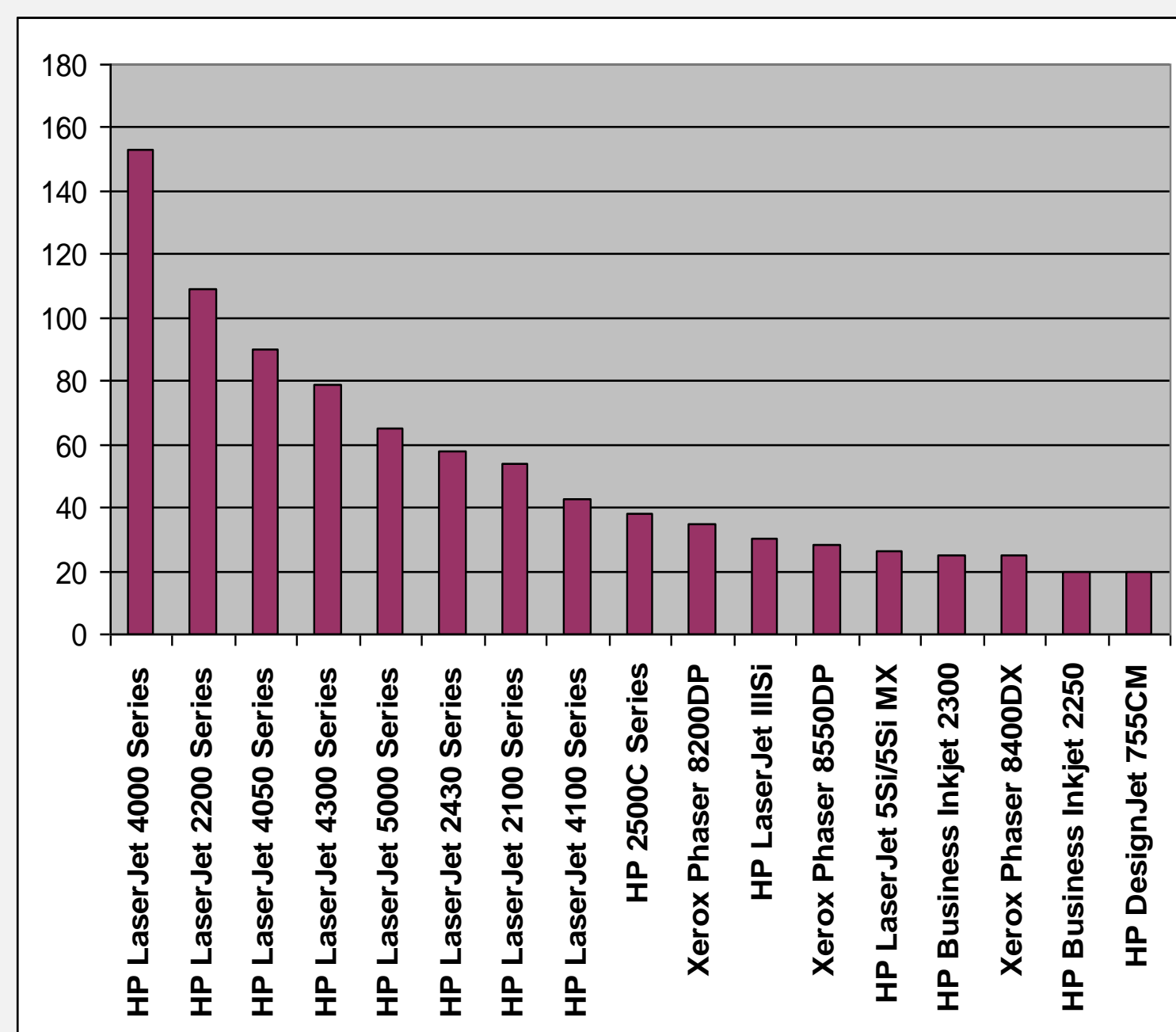
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The new printing service at CERN reduces the amount of home-written software used in the generic computing infrastructure, realigns CERN with established printing standards and automates the installation and configuration of centrally managed printers. The benefits of these changes are the reduced costs and simplified printing for users, especially visitors, who will no longer need access to special client software.

Printer Population and Print Jobs

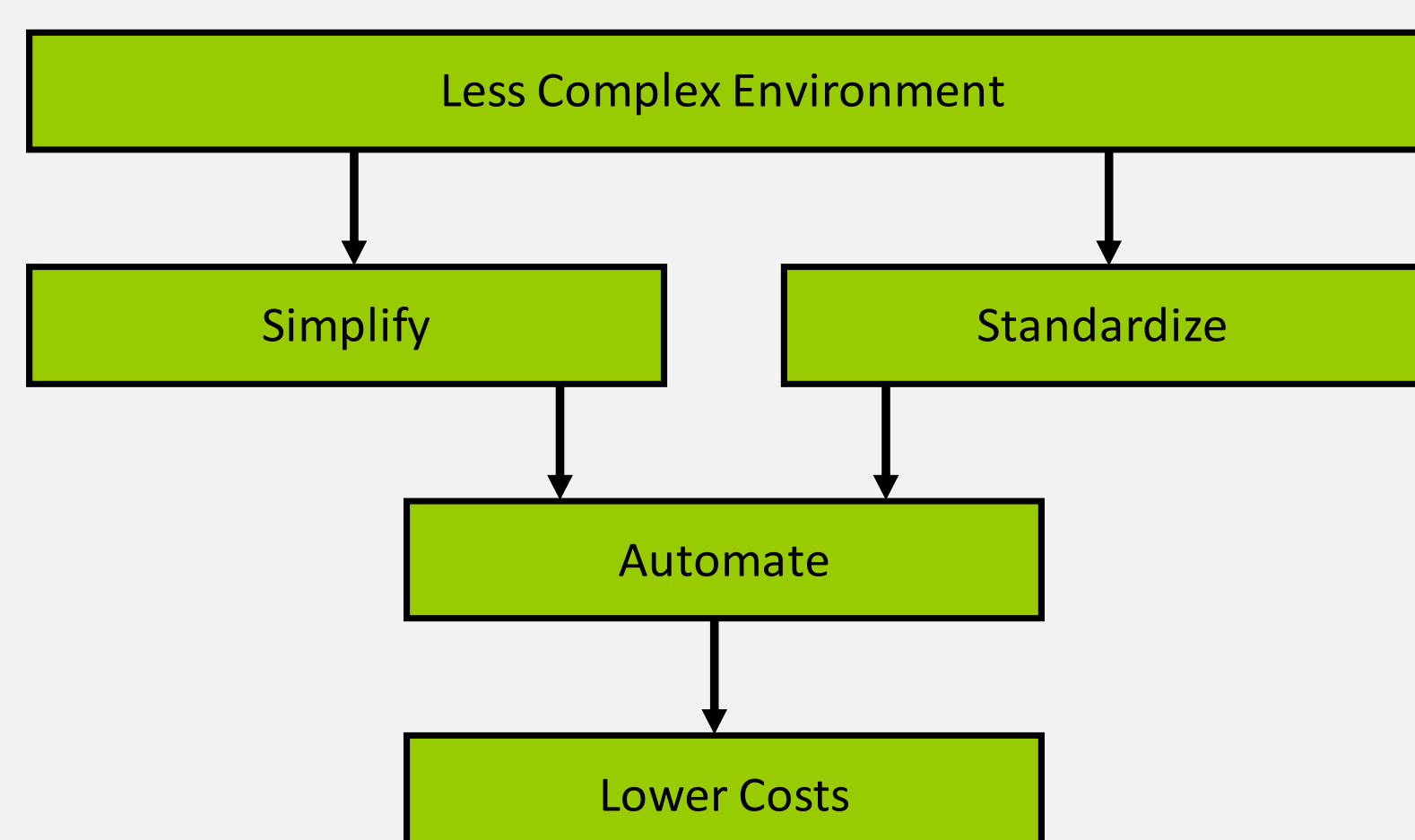
- 1191 printers registered
- 88 different models
- 51 models which are represented by less than 5 printers
- 7 most popular models cover 51% of printers



Statistics from previous system

- 77% of jobs coming from Windows clients
- 20% of jobs already formatted in PostScript (non-Windows)
- 1% of jobs formatted in PCL
- 1% of jobs plain text files
- 1% rest of the formats (including PDF, JPEG, GIF, GZIP, etc.)

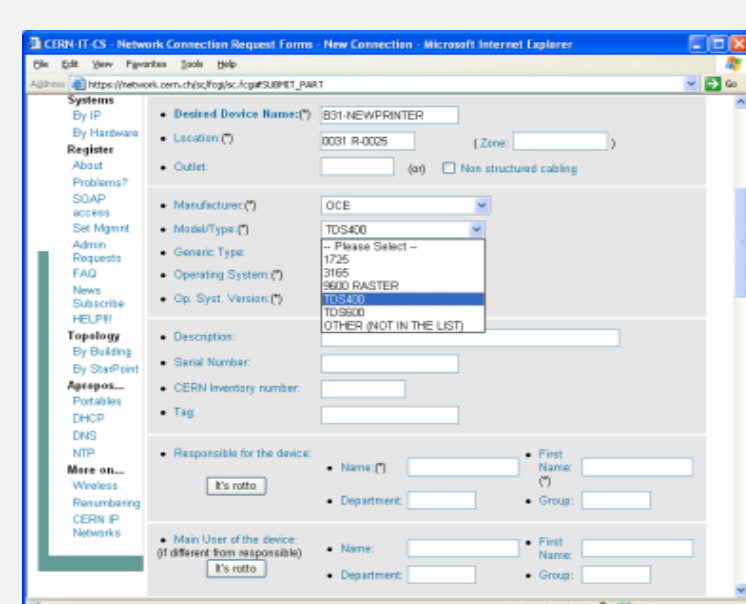
Manual management of such high number of printers and print queues is difficult and time consuming. Since most of the jobs coming to print server were already formatted, it is not anymore necessary to format the document on printer server.



Therefore the new architecture was proposed.

Printer Installation Process

- Printer is registered in network registration database (LanDB)
 - Static IP has to be assigned by network operators
 - Model name has to be provided
- Printer synchronization job
 - Installs queues
 - Applies templates
 - Publishes printers in Active Directory
 - Creates DNS aliases in print.cern.ch zone
- Client computers get the default settings when configuring the printer



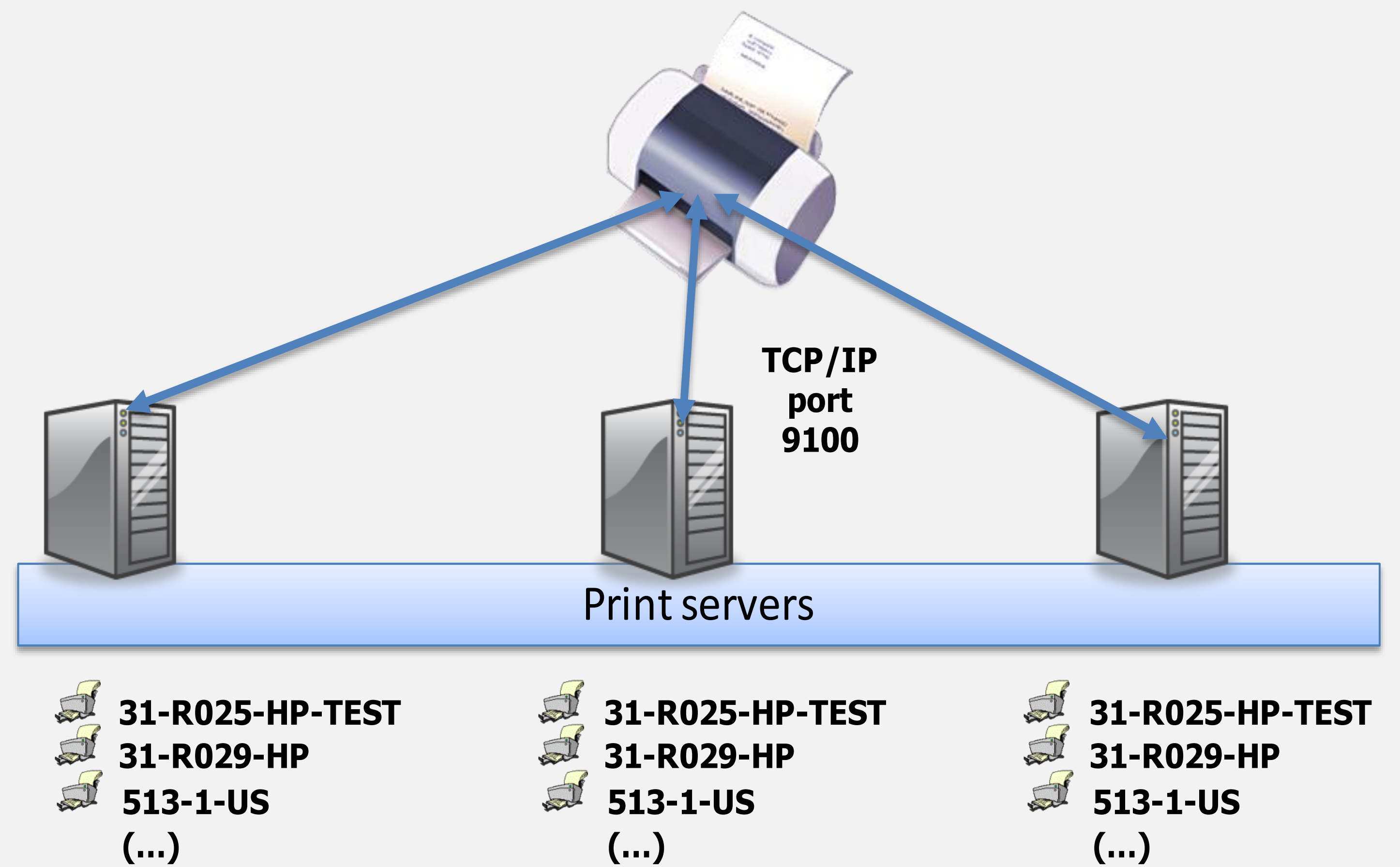
Default settings

Print server running
synchronization job

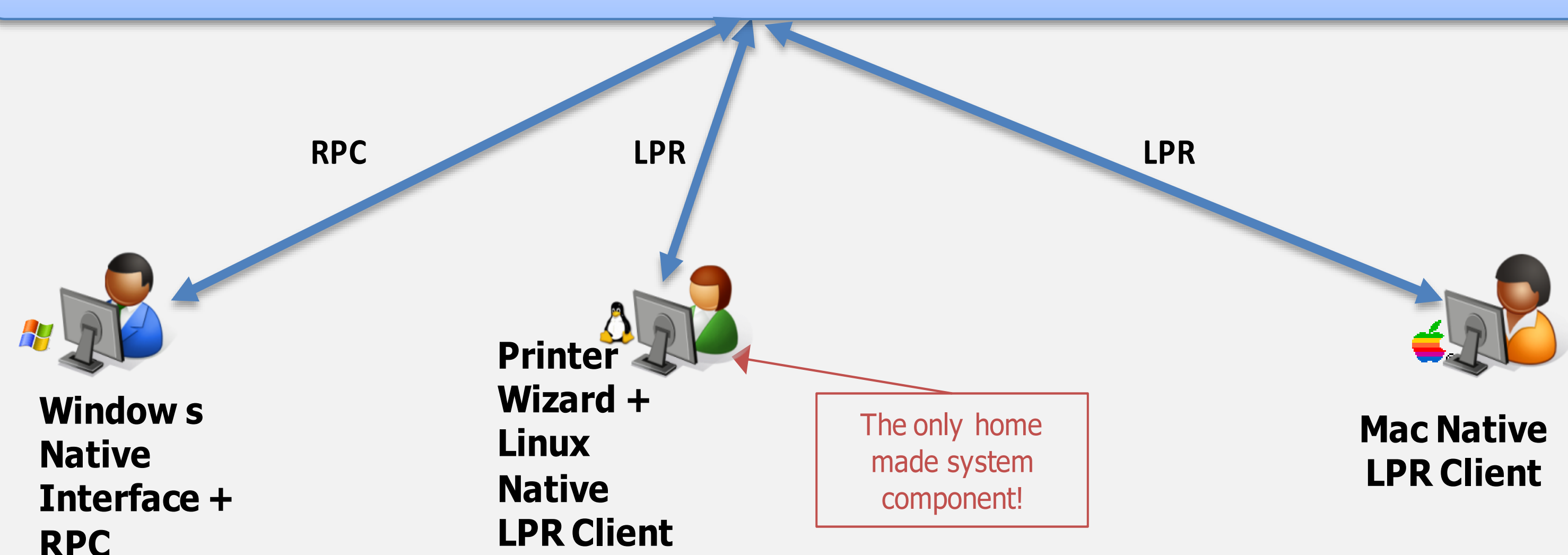
LDAP

DNS

Architecture Overview



print.cern.ch



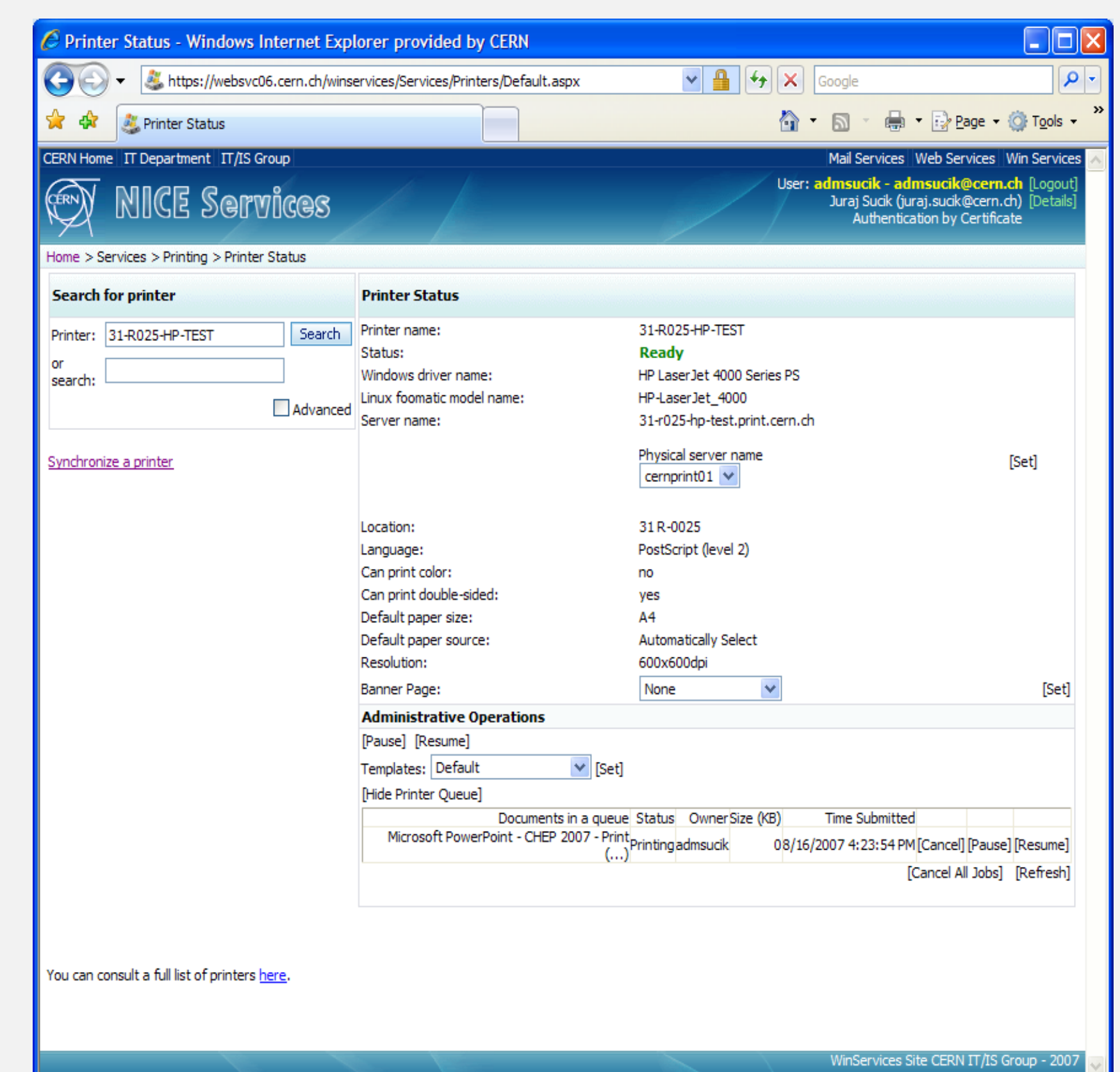
The architecture of CERN printing service consists of three servers configured in the same way. Each server has queues configured for all printers and hosts SOAP interfaces which allow to reconfigure the printer queues. The initial configuration for each driver must be set by an administrator:

- Device settings which cannot be changed by a user
- Default printing preferences, which can be then changed by each user

The periodically executed job is responsible for printer installation process and queue settings synchronization. The printer queue settings which are stored in a binary format in the registry of reference print server are dumped to a file and then reapplied on the appropriate queues of the other print servers.

Printer Status Page

- Displays information about printer settings and current status
- Used by printer administrators to change templates and banner pages
- Used by printer operators to view and manage the printer queue
- Used to force the synchronization of the printer with settings in network registration database



References

- <http://cern.ch/WinServices/Help/?kbid=070001>
- <http://cern.ch/cnlart/2006/005/16>